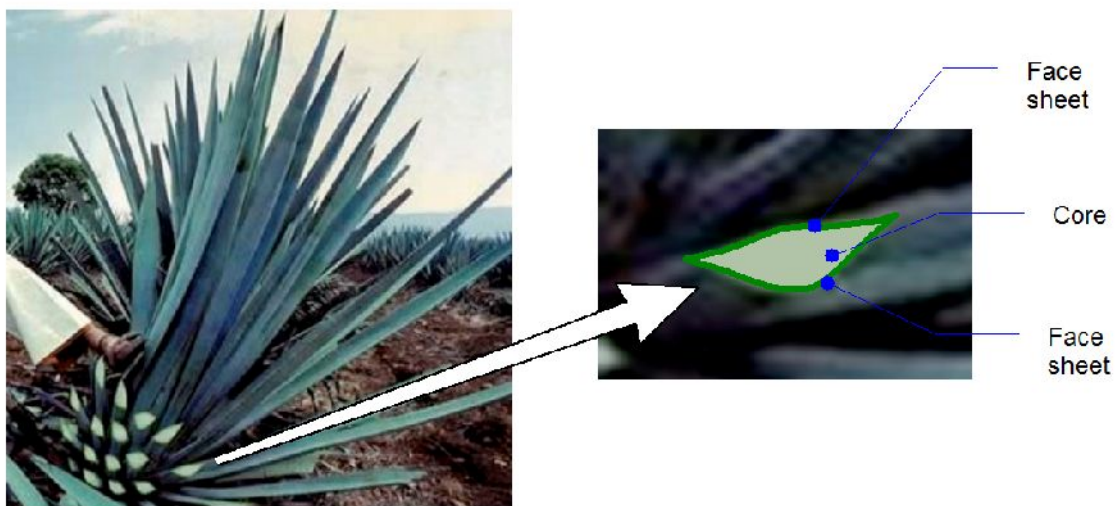


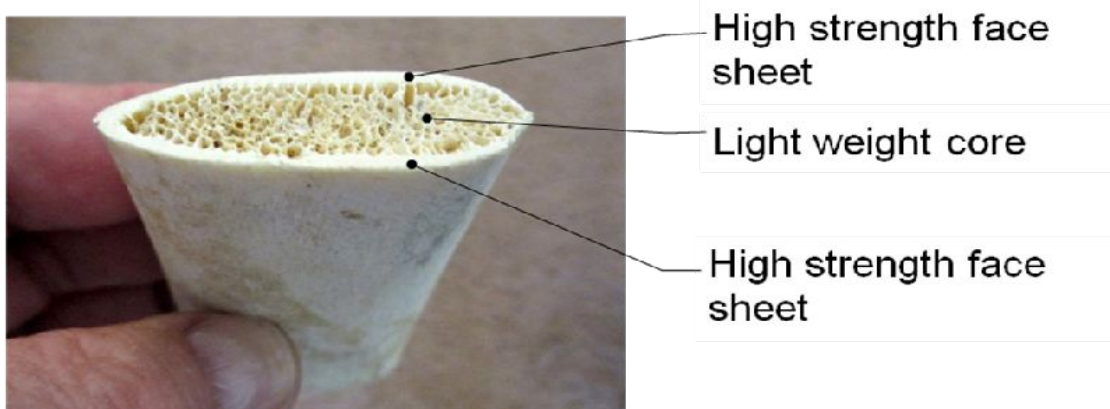
Sandwich Fabrication in Nature

Plants have developed sandwich fabricated structures for the same reason as solar mirrors need them: high strength combined with low cost. Cost here means the amount of material used in making the structure, always a priority in the organic world.

Below is an agave cactus used in making tequila. The cactus lives in a desert climate where it must withstand high winds. High winds are the same problem that solar mirrors have. The blades of the agave plant have an outer cover made of high strength fibers. These “face sheets” carry the blade’s wind loads. They are supported internally by a light-weight core that holds the face sheets apart.



Organisms have also developed sandwich fabrication. In the cutaway of a rib bone below, high strength face sheets made of bone gives the bone high strength while foam – also made of bone – holds the face sheets apart to give them the highest load-carrying capability.



Sandwich fabrication is the best way for a solar mirror to stand up to high winds, its dominant load. Just as plants and animals use sandwich fabrication effectively, so can solar mirrors.